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ABSTRACT

Two brief fact sheets for people with disabilities provide information on: (1) modifying a trailer to make it accessible for persons with mobility impairments, especially those in wheelchairs, and (2) accessibility considerations for home buyers or home owners with mobility impairments. The first fact sheet identifies inherent problems in modifying trailers because of their small size and shortage of load bearing walls. It then makes specific modification suggestions about entrances and exits, safety, grab bars, bathrooms, halls and doorways, kitchens, and living rooms. The second fact sheet provides a check list to allow home buyers to make a comparative analysis of accessibility. The check list addresses: general considerations, site considerations, door openings, kitchens, bathrooms, interior circulation, and building elements. (DB)

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How to Modify a Trailer for Accessibility*
*(up to a point)

[and]

Accessibility Considerations for Home Buyers

Key Notes

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KEYNOTES

How to Modify a Trailer for Accessibility * *(up to a point)

THE ACCESS GROUP has produced a series of Keynotes fact sheets in response to the assistive technology information needs of our families. Over the past year we have had many requests from families who live in mobile homes and who are encountering barriers to accessibility. About the time we were considering development of a fact sheet in this area, we received a wonderful article on this topic from the Center for Independent Living of North Florida, Inc. They have agreed to share this information with our readers by allowing us to reprint their article. This article originally appeared in their newsletter ACCESS, August 1992, as Part 6 of their Rural Independent Living series.

Article: HOW TO MODIFY A TRAILER FOR ACCESSIBILITY* *(up to a point)

The subject of this issue is home modification—specifically, how to modify a trailer to make it an accessible home for persons with mobility impairments, especially wheelchair-users. It seems as if every month we get another half-dozen requests for advice on accessibility problems from people who live in trailers, mobile homes, manufactured homes or modular housing. Many of them have heard that "there's nothing you can do with a mobile home," and for them we have good news: the bad news is mostly wrong. There are a lot of things you can do with mobile homes. They just require more ingenuity—and sometimes more expense — than the equivalent modifications in a home of wood, brick or cinderblock construction.

The basic problems with modifying trailers are their relatively small size and their shortage of load-bearing walls. Narrow hallways and small rooms — especially small bathrooms — create major problems for people who have to maneuver in wheelchairs, and grab bars can't be anchored in thin partitions or in sheet metal. Many trailer walls are made of 2x2 lumber, which cannot support grab bars. They do have studs — load-bearing beams — but the studs may be too flimsy to be used in the same way household studs would be used. Find out what kind of construction your trailer has — 2x2s, 2x3s, or 2x4s. If you have 2x4s, you're in luck — you can use them just as you would household studs.

Fortunately, there are reliable solutions to the problems of narrow doorways and flimsy walls. One warning: although it is expensive, some modifications will require a professional carpenter who has experience working on trailers. Many jobs that an experienced carpentry hobbyist could do for a house require a professional if you want to do them in a trailer. (For example, welding could be required, or someone who knows how to cut stressed particle board without causing it to lose its strength.)

We would like for you to keep two things in mind as you read this article. First of all, there are dozens of different trailer designs, so some points of this article are probably going to be irrelevant or downright wrong for the trailer where you live. Check everything we've mentioned against the specific arrangement of your trailer before you do anything, and that includes asking someone to give you an estimate for a modification job. Nowadays, just getting an estimate can cost you hundreds of dollars. (If you need modifications, but can't find someone you trust to do them, contact your Center for Independent Living).

Second, be careful of your structural integrity and your load-bearing surfaces. "Struc-

tural integrity" means that the supports which were designed to carry the weight of your trailer still have the strength to do so. It's an engineering term, but one that we feel you should get to know despite the fact that it sounds like jargon. Always ask a contractor who comes to modify your trailer if he or she will affect its structural integrity or alter a load-bearing surface.

As we looked over our inquiries from the last year or so, we saw that they fell into seven categories, which we will address in their order of frequency: entrances and exits, safety, grab bars, bathrooms, halls and doorways, kitchens and living rooms.

In this article, we make the assumption that you are using a wheelchair, but many of the suggestions we have to make will be useful to someone who uses a walker or crutches. Again, measure every suggestion against the specific design of your home and your particular, unique needs.

Incidentally, if we've overlooked something that worked well for you, by all means, write or call us and tell us about it, so that we can mention it in a follow-up article. We're sure experience has made experts out of a lot of ACCESS readers, and we always love to hear from you.

Entrances and Exits

The most obvious accessibility modification for a trailer is a ramp, and the Center builds 12 to 15 ramps onto trailers every year. The same rules of ramp construction that apply to houses apply to trailers, of course, but ramps up to trailers tend to be much longer, since trailers are usually built three feet or more up off the ground. The Center always builds free-standing ramps that do not lean against or rest upon anything else for support, and this is especially important when ramping a trailer, since their structural supports tend to be strips of metal or plastic that are carefully calculated to support the weight of the trailer and no more.

Ramps should always be built on a one to 12 gradient (one foot of ramp for every inch of height), and they must be three feet or more wide, with siderails. Every 16; feet of length, the ramp needs a four-foot deck rest platform. A deck should be provided for every turn, and a 5x5 foot deck at the doorway. The ramp weight is supported on 4x4 beams, and the crosspieces are 2x4s. Supporting beams must be anchored in postholes. Pressure-treated wood should always be used to resist insects and rot; and the ramp should be sealed with water seal to protect it against mildew. Spread some sand thinly on the wood before you varnish or seal the ramp, to provide traction when the ramp is wet. Use a galvanized sheet metal strip for the "lip" where the ramp meets the ground, and smooth off the ground at that point so that the wheelchair rider emerges onto a level surface.

If your ramp does become mildewed, it may get slippery. You can remove mildew by having it pressure-washed with bleach. Shaded ramps are more likely to mildew.

Your ramp should meet five criteria. First of all, it must be sturdy. Use board lumber instead of plywood. Second, it must be durable. Use only pressure-treated wood for construction, and apply water seal to your ramp to protect it from moisture. Third, it must be surfaced to prevent skidding. Leave a nails width between the crosspieces to allow water to drain away and spread sand on the board before you water seal them to create traction. Fourth, your ramp bust be portable. Our design is "modular," so that you can build your ramp in pieces and dismantle it when you move or no longer need it. Fifth, it must be safe. All ramps need to have handrails. Sixth, and most important, it must be the correct slope. A ramp is one foot long for every inch in height, so that the grade for the ramp never exceeds 1 in 12. Every 16 feet, you need a four-foot level landing for turning or resting.

Your materials will be: 4x4 boards to hold up the modules, 2x8 boards to frame the modules, 2x4s for the crosspieces. The turning and resting decks will only be 4 feet by 4 feet. The modules are supported by a frame of 4x4 supporting beams and crosspieces. Attach the modules to the supporting beams at a 1 to

12 angle, and allow a slight drop (no more than 1/2 inch) between each modules, or between each module and the adjoining deck. The railing should be exactly three feet above the ramp deck. You may smooth off the "lip" of the ramp by nailing a sheet of galvanized metal to the ramp just above the point at which it extends to the ground.

Most trailers have outside doors that are wide enough to admit a 24-inch-wide wheelchair, but you may have an extra-narrow doorway or an extra-wide chair. This will probably be one of those problems you will have to leave to a professional, since it will mean replacing the doorjamb — a $150 to $200 job. Your carpenter will have to cut out the old doorframe and replace it with one from a construction-supply store, and then hang a new door. The good news is that doorjams in trailers are almost never load-bearing, so the job probably will not involve any structural work. ()Before you replace a doorjamb, however, check to see if the studs next to it are load-bearing studs.)

Trailer doors that are made out of metal often have a sill that bumps up, and the door swings out and hangs below the sill to make a weather seal. The porch landing must sit below the level at which the door swings, creating a high threshold. If this is a problem, you will need to install a custom door and cover the area over the porch, since your new door won't be as rainproof — and trailers don't have eaves.

Most trailers have two doors, and you would do well to consider which one of them should be ramped,. Usually you will want the front door ramped, but if there is a back door that is more convenient for you, ramp it instead. (The back door could open directly into your room, for example, or lead directly to the place where you park your vehicle.) It is advisable not to ramp the side of your trailer that leads directly into the mud, underbrush or thick sand, any of which will be a mobility problem for you.

Safety

Unless you can afford to build two ramps, you will have only one safe way to get out of the trailer in the event of fie, tornado, or other disaster. It is a serious mistake to build a cheap, flimsy and steep "emergency ramp" onto the second doorway, because your "emergency ramp" will probably collapse under you just when you need it the most. Tornados, hurricanes and floods can only be beaten by advance planning. If there is any chance that an alert will be posted, check your radio every 15 minutes and be ready to evacuate the moment the authorities tell you to. If you get out in time, you won't have to worry about escaping from your trailer in the teeth of an approaching "twister" or rising flood. Contact your local disaster preparedness officials to find out if your state has a disaster evacuation plan and how they support individuals with disabilities. You may need to register with them in advance. (You should, of course, have the standard "hurricane Kit" ready to throw in your vehicle: flares, flashlights, blankets, water canned goods, bandages, personal care supplies, etc.)

Fire, on the other hand, is something you can deal with by making the right modifications. First, you need at least two working smoke alarms— one in the living room/kitchen area (where most fires start), one in your room and one in the bedroom of everyone who smokes. Get at least two small Halon fire extinguishers and mount them along your escape route — they weigh only two pounds or so and can clear your path for a few seconds. Finally, your local fire department can help you obtain decals to put in your bedroom window to tell firefighters that you need assistance.

Grab Bars

As we said above, grab bars need to be anchored in load-bea.ng surfaces. In a house, you would anchor your grab bars to cinderblocks or in studs, which re thick beams that support walls and roofs. Carpenters locate the studs by tapping the wall to listen to the echo, or using an electrical "stud detector" which measures electrical impedance. (The impedance is higher when the detector is held next to the thick stud.)

Trailers usually have partitions made of particle board, fiberglass, plastic, thin paneling or sheet metal. DON'T EVER ANCHOR A GRAB BAR IN ANY OF THESE SURFACES no matter how sturdy they seem. Even if the installation seems to hold, the supporting material could be starting to crack or bend where you can't see it. More likely than not, you will simply splinter or otherwise damage the wall when you try to drill into it. We're sure of this.

Most people who ask us about grab bars want them for their bathrooms, and we have a number of ideas about handling bathroom access problems which we'll explain next. For now, let us explore the proper way to put in grab bars if you *have* to have them.

The secret to installing grab bars where there isn't any place to install grab bars is to start by putting in something to hold them. This sounds simple, and it is — in principle. You need to install sheets of wood heavy enough to support grab bars carrying at least 225 pounds of weight. In practice, this means .25-inch or thicker plywood. The plywood sheets, which are technically known as "blocking," have to be anchored themselves, but long sheets of plywood are easier to anchor than 18-inch or 24-inch grab bars. In many trailers, (usually doublewides) weight bearing supports are located in the corners of rooms, and the blocking can be anchored to them; in others, blocking can be secured to the floor. Both of these are jobs you will want a professional to do, but then make it possible to put in grab bars and other heavy fixtures in places where they couldn't be attached any other way.

There are two ways to install blocking: you can secure the blocking outside the partition, which leaves the plywood visible and is not attractive looking, or you can remove the partition, put the blocking behind it, and replace the partition. This is more expensive, but looks better. Since the shower stall in most trailers is a large plastic box, it is easiest to install hidden blocking behind a shower stall, which, fortunately, is the place where most people want to put blocking to begin with. (This makes sense, because more people want grab bars in a shower stall or bathtub than anyplace else.) In some cases, but not many, the plastic sheeting of the stall itself may be sturdy enough for you to anchor grab bars. You should have an expert check the shower stall's strength before you anchor grab bars in plastic.

You may be able to do without blocking if you can install 2x6 or 2x8 "nailers." These are screwed into four or more wall studs to distribute the weight on a grab bar between them. The grab bar can be screwed directly into the nailers.

Blocking is one of those jobs that should be done by a skilled carpenter or somebody who is very certain that he or she knows their trailer. Mistakes could cost you hundreds of dollars in repairs. Nonetheless, we don't want to discourage you from installing blocking in rooms where you need grab bars; just read the rest of this article to be sure that you really *do* need blocking.

Bathrooms

More people ask for our help to modify bathrooms than any other single room in their home. This is true for houses and trailers.

Bathrooms tend to be the smallest rooms in any home, and if you use a wheelchair, maneuvering can be tough. They also tend to have the narrow[illegible]ors, for some reason. (If there's only one room in your home with a 24-inch door, it will be the bathroom.) You could have a new doorframe cut, but first see if this will get you enough room to enter and exit the bathroom: take the door off the hinges and remove the hinges. This will probably get you an additional inch and a half of space. For privacy, you can hang a curtain over the doorway. There are also special door hinges that will reverse the direction of the door's swing, which might make it possible for you to mount a door after all.

Inside your bathroom, make as much room for yourself as possible by removing laundry hampers, storage cabinets and anything else that gets in your way. Take out any throw rugs you may have, too, since

they will tangle in your wheels or walker. (If you use a walker or crutches, get some strips of traction material from the bathroom section of your local hardware shop, to protect you from falls when the floor is wet.) Remove any cabinet mounted below your bathroom sink, so that you can roll under it, but be sure to wrap the pipes with insulation to protect you from burns if the pipe happens to be carrying hot water. Before you remove the cabinet, check to see if it supports the weight of the sink. If it does, you will need to build an alternative support or replace the sink. You may also need to replace the sink if it is too low to roll under, even with the cabinet removed.

Consider moving or removing any objects that stick out from the walls, like towel racks. Don't fall into the mistake of assuming that any place where a towel rack is mounted is safe for you to put grab bars; towel racks carry three or four pounds of weight and may be safely supported by mere wallboard; a grab bar has to support your weight.

You can adjust the height of your toilet without replacing it with a "riser." A riser is an insert that clips to your toilet bowl and provides a higher surface for you to sit on, reducing your need to lower and raise yourself to use the toilet. Some risers are just molded plastic inserts, and others can be adjusted in height. If you use a wheelchair, select an adjustable riser, and set the height of the riser so that it is level with the seat of your wheelchair. That way, you can pop out the armrest of your chair and slide right across. (If you live in a trailer, you've got to have a chair with removable armrests.)

If you need to steady yourself getting on and off the toilet, get a toilet frame instead of installing grab bars. Toilet frames attach to your toilet and offer you handles to grab as you move on and off the toilet. Most toilet frames attach to the screws at the back which secure the toilet seat and lid in place; some of them clip tightly to the toilet bowl. Either type could eliminate the need for your to put grab bars into the wall. You can even buy toilet frames and risers in one piece, saving yourself an installation job.

Before you install the frame, shake the toilet vigorously a few times to see if it wiggles. If it wiggles where it mounts to the floor, you will need to beef up the floor at the commode base to use toilet frames.

If you use a wheelchair and have just one strong arm, you can make a side approach for yourself by sawing off the frame arm on the same side as your bad arm, which will allow you to use your good arm to pull yourself straight across from your chair. Be sure to cover the rough edges with something to protect you from cuts.

The bathtub is another place where may people want grab bars. As we said above, it may be easier to put them in a shower stall than most parts of your trailer, but it is possible that by following our tips, you could change your mind about needing grab bars in your walls. First of all, consider grab bars that clip onto the tub itself. These are available in all shapes and sizes, and if they are attached carefully, they' re just as steady and secure as grab bars anchored in your wall. Don't forget that if you will be climbing in and out of your tub, you will need traction strips in the tub and right next to it, as well.

A tub transfer bench could be the answer for your if your just plan to use the tub to shower in. A tub transfer bench is a five-foot bench with suction cups on the legs. One end of it rests in the tub and the other outside the tub; your or your personal care assistant can just slide yourself from your wheelchair across into the shower stall. Tub transfer benches are adjustable in height, too, so you should adjust yours to the same height as your wheelchair, which will make transfer easier whether you do it alone or with help.

Most trailers have floors made of composite materials, which does not hold up to moisture. Try to minimize the amount of water that spills or drips out of the shower stall. Put down a good vinyl mat, and be sure to mop up any moisture quickly when you finish using the shower.

If you have the money to spend, shower lifts offer a high-tech solution. A shower lift swings itself over the tub and lowers you in. When you finish bathing,

it reverses the process. Shower lifts use the faucet water pressure to provide motor power, so there is no risk of electric shock. A good one costs about $700, but they do not need to be installed by professionals.

Many trailers have extremely high bathtubs. Tub transfer benches are not usable if the bathtub is more than 18 inches high, but grab bars and shower lifts may still be feasible. You may also wish to replace the tub.

Halls and Doorways

There isn't much that you can do about narrow hallways, except to keep them clear of obstructions. Some people have solved the "hallway" problem by cutting a hole from their bedrooms directly into the bathroom. Others take pains to be sure that there is room to turn a wheelchair around in each room leading off the hall, so that they do not have to wheel backwards any distance.

Doorways, on the other hand, can usually be improved. Even if it is not feasible to cut a new doorway, removing the door and hinges will usually provide an extra inch and half of clear space. Curtains or sheets can be tacked up to provide privacy. It may also be possible to remove the doorjam without much trouble, since trailers usually do not have weight-bearing doorframes.

If you have adequate clearance, but find the door awkward to use, replace the doorknob with a handle or level-type knob for easier grasping. If the door sticks, have it planed down so that it fits the doorjam better; if it sways too much, have it rehung and grease the hinges.

Kitchens

Start by putting in enough low storage space for your needs. In most trailers this will mean installing shelves or racks yourself, instead of taking the upper cabinets and lowering them.

Oven and burner controls should be mounted on the front; if you have to reach across hot burners to get to them, the controls are not safe. Likewise the oven door should be easy to reach. If you can't manage these things safely, consider replacing the oven—nothing else would be safe.

If you don't have enough counter space to prepare your meals, consider these ideas: take a table and shorten the legs by sawing off a few inches; use a lapboard that attaches to your wheelchair; mount a swinging table to the counter, with clear space below it, or fasten a cutting board securely to the edges of a drawer, to make a pull-out cutting surface. You can cut out a circle the size of your mixing bowl in your cutting surface, and steady the bowl by mounting it in the cutout so that you mix one-handed. If you purchase a lapboard for your chair, get a see-through one so that you don't accidentally drive your feet into a solid object when you can't see them. Lap boards that are specially designed for use as cutting boards are available; some of them have bowlholes built in.

Drawers can be equipped with bigger handles if you have trouble grasping the ones built in. Lazy susans can make items in your refrigerator and on pantry shelves easier to get to. If you can go "first class," take the sink out and reverse it, so you can reach the spigot and knobs easier. You can also equip the knobs with long lever handles that make them easy to reach.

Sometimes the most useful "modification" you can make is to use a standing-frame wheelchair, if you are medically suited to one. (This is true of many environments, not just your kitchen.)

Naturally, a dishwasher is one of the ultimate adaptive devices.

Living Rooms

The most important things to remember about your living room are: don't let them get cluttered with too much furniture, and don't use throw rugs.

Many trailers have counter space build along the edge of the kitchen to crate a divider between the living room and the kitchen. If the counter space isn't useful to you, and you can't lower it, rip it out; this will give you more living room space and a more direct access to the kitchen.

If you find that your wheelchair is tearing up the carpet, have it replaced with outdoor or commercial carpeting, which can usually handle the traffic. When you have the new carpet installed, check to see if the carpets have been installed directly over the old layers over the years. Many trailers have several layers of carpet. Have these extra layers removed. You will roll easier, and your new carpet will last longer.

Final Thoughts

We hope you found some useful ideas in all this long mass of boring technical detail. The most important point we wanted to make is that there is always room to make improvements in the accessibility of your home. No matter what kind of living environment you are in, with creativity and a little work, there are always solutions to the problem.

Editor's Note: This article was written by John R. Woodward, M.S.W., Community Relations, Center for Independent Living of North Florida, Inc., 1380 Ocala Rd., H-4, Tallahassee, FL 32304. voice/TDD (904) 575-9621. Mr. Woodward notes that Ken Bass and Ken Jason of the Tallahassee Housing Foundation reviewed this article for technical accuracy and made many helpful suggestions. Their help is much appreciated.

KEY NOTES are created by THE ACCESS GROUP to provide information about assistive technology to the families of Vietnam veterans who have children with disabilities. THE ACCESS GROUP is jointly funded by the Agent Orange Class Assistance Program and United Cerebral Palsy Associations, Inc. If you are a family member or a professional working with families of Vietnam veterans, THE ACCESS GROUP can serve as a resource to you in your efforts to obtain assistive technology. This publication is also available on audiotape. For more information call: 1-800-821-8580 (Voice, TDD).

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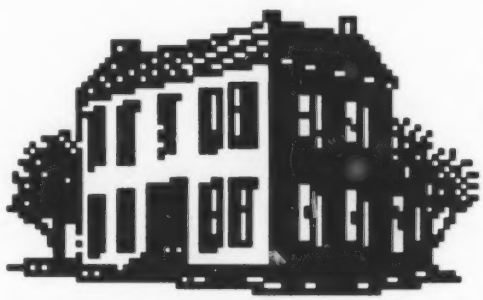
KEYNOTES

ACCESSIBILITY CONSIDERATIONS FOR HOME BUYERS

The purchase of a home is an age old ambition of most Americans, "The American Dream". As people begin determining their needs and reviewing the varied inventory of both new and resale homes, many personal considerations must be addressed. For years most housing has been designed and built without regard to accessibility requirements. Unfortunately, this places a greater responsibility on the shoulders of the home buyer as he or she considers the purchase of a home. In this preliminary guide, we hope to provide some insight into this process by outlining of considerations which should be addressed as you take on this difficult and sometimes confusing endeavor. As you review your purchase considerations, and prior to placing a contract to purchase, it is advisable to consult with an individual who is familiar with accessibility as well as building design and construction. This may prove invaluable since, this person may be able to help you evaluate accessibility alternatives and provide advice as to the probable costs associated with such alterations. All of this is important as you consider each home possibility, sincethese added-cost items need to be accounted for in your personal financial planning related to this purchase. There are a number of firms and/or individuals who can provide this expertise. These may be located through the local telephone yellow pages, the local chapter of the American Institute of Architects, or through one of the seven Regional Technical Assistance Centers which are funded by the National Institute on Disability and Rehabilitation Research under the U.S. Department of Education.

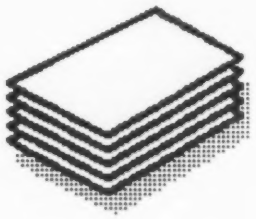
The following information is provided as a general guide for use by the prospective home buyer. It may also be of use to the person contemplating altering their present home. It is intended to give an overview of major considerations when surveying a home for accessibility. Best wishes and happy house hunting.

There are a number of considerations which must be addressed as you consider the purchase of a new or resale home. Homes, like people, come in all different shapes and sizes. Therefore, we have listed some major factors to review as you narrow your list of potential homes.



We have developed a review check list for your use in making a comparative analysis of accessibility and recommend that you make several copies and complete one check list for each potential home. After this you can sit down and make a logical comparison of all homes reviewed and narrow the list to two or three. We would suggest that you keep the review material for the other homes which you rule out, so that when you retain professional assistance, you can reconsider with this individual your reasoning for discarding these homes. The professional may offer some new perspective on a home which you may have liked but ruled out because of your view that acceptable accessibility was not achievable.

The following list of major considerations should be used in conjunction with the check list.



1. GENERAL CONSIDERATIONS: (see insert chart)

A. A single story home will probably offer better accessibility than a two story house.

B. Is the neighborhood hilly or relatively flat? Are there sidewalks with curb cuts at each street intersection?

C. If there is a neighborhood community center with swimming pool, is this facility fully accessible or is the organization willing to make provisions to improve accessibility?

2. SITE CONSIDERATIONS:

A. Is the site severely sloping ? Accessible routes, such as drives, and entrance walks should not exceed one foot of vertical rise in a twenty foot horizontal run. Walk ways which may be steeper are considered a ramp and should have handrails on both sides of the ramp. It is recommended that each sloped section of a ramp have landing areas spaced no greater than thirty feet apart. Keep in mind an adequate minimum width for the driveway parking area should be sixteen feet in width by twenty feet in depth. Should you have two vehicles, this should be considered also.

B. Is there adequate site lighting to support the needs of a person with a vision loss?

C. Will a ramp be needed between the entrance walk and the front and rear doors? Is there a step from the front/rear stoop to the main floor level of the house?

D. Is there sufficient area on the front and rear stoops for turning with a wheelchair? Minimum five foot by five foot space. Are there adequate handrails for stoops?

3. DOOR OPENINGS:

A. Most houses have front doors which are thirty-six inches wide, rear doors which are thirty-two inches wide, bedroom doors of a thirty inch width, and bathroom and closet doors as small as twenty-four inches in width. The minimum clear width for wheelchair accessibility is thirty-two inches, which usually means that a minimum door width of thirty-six inches would be necessary. Generally, to enlarge a door opening, a physical dimension of 48" is needed between adjacent walls. However, you must also consider the accessibility approach to the door.

B. What kind of door hardware is used? This may need to be changed to a lever type handle. Also consider thumb latch and keyed deadbolts in terms of ease of operation and mounted height. These may require re-mounting.

4. KITCHENS:

A. Most kitchen base cabinets are typically thirty-six inches high, with doors and drawers below. Consider door and drawer hardware, which should be large enough to operate without tight grasping, tight pinching, or squeezing motions. Handle locations are also important with bottom location for wall cabinets and top location for base cabinets. Consider arrangement of appliances and maneuvering space, (5' diameter turning space).

CHECK LIST FOR ACCESSIBILITY

		Remarks
GENERAL CONSIDERATIONS:		
	Number of Stories?	
	Topography of Neighborhood - Hilly?	
	Sidewalks - Width/Slope?	
	Curb Ramps?	
	Recreation Center - Accessible?	
	Neighborhood Swimming Pool - Accessible?	
SITE CONSIDERATIONS:		
	Site Topography - Severe Slopes?	
	Front Entrance Walk - Width/Slope?	
	Rear Entrance Walk - Width/Slope	
	Driveway Parking - Width/Slope?	
	Adequate Site Lighting? - Accessible Routes	
	Is Ramp Needed To Front & Rear Entrances?	
	Is Existing Stoop Sized Adequately?	
DOOR OPENINGS:		
	Front Door Size?	
	Rear Door Size?	
	Bedroom Doors Size?	
	Bathroom Doors Size?	
	Walk-in Closet Doors Size?	
	How Many Doors Need Enlarging?	
	Is There Adequate Clearance For Increased Door Size?	
	Review Edge Clearances For Approach Conditions.	
	Type of Door Hardware?	
	Can Retrofit Handles be Utilized?	
	Location and Type of Deadbolts	

KITCHENS:

	Adequate Turning Clearance in Kitchen?	
	Location & Type of Cabinet Hardware?	
	Sink Location & Potential for Adaptation?	
	Potential Area Within Kitchen For Lowered Work Area?	
	Type of Range - Surface/Drop-in?	
	Location of Range Controls?	
	Type of Refrigerator/Freezer?	
	Type of Ovens - Bottom or Top Hinged Doors?	
	Space for Pull-out Shelf Under Oven? - Side Hinged Door	
	Controls on Range Hood Reachable?	

BATHROOMS:

	Physical Dimensions of Bathrooms	
	Type of Tub - Combination Shower?	
	Type & Location of Tub/Shower Controls	
	Hand Held Shower Unit?	
	Location & Size of any Grab Bars?	
	Clear Space in Front of Tub/Shower - Size?	
	Distance From Center of Toilet to Side Wall?	
	Clearance In Front or to Side of Toilet?	
	Type of Lavatory - Wall Hung or Counter Top?	
	Type of Controls on Lavatory?	

INTERIOR CIRCULATION:

	Width of Hallways?	
	Are Doors From Hallways Accessible - Refer to Illustrations	
	Size of Bedrooms, Breakfast Rooms, Foyers?	
	Changes in Floor Levels - Small Elevator/Lift?	

BUILDING ELEMENTS:

	Type of Wall Switches - Toggle?	
	Height of Wall Switches?	
	Height of Thermostat?	
	Attached Lighting Fixtures - Adequate Light Level?	

OTHER COMMENTS:

B. Review the sink cabinets to determine if the counter/sink may be modified to allow a lowered installation, (28" to 32"), with an apron for concealment of pipes. If protective apron is not feasible nor desired, pipes (supply and waste) should be wrapped with an insulation wrap to prevent injury from burns. The sink should have at least one bowl which is no more than 6-1/2" deep.

C. Consider possible location within the kitchen cabinetry where a lowered work counter can be installed. Be sure the knees can clear the space below the counter.

D. Consider appliances. Side by side refrigerator is best for individuals in wheechairs; drop-in range should have controls at front or at side; range hood should have controls within reach of range. If wall oven is built-in, bottom hinged door is best. If oven is side hinged, a pull-out shelf should be added under the side hinged door for placement of hot items.

5. BATHROOMS:

A. Residential bathrooms are generally quite small and do not afford the necessary turning space for people who use wheelchairs. A professional will be of great assistance in the possible relocation of walls and/or re-arrangement of fixtures.

B. Most bathtubs can be modified with grab bars, hand-held shower, and movable seat with or without backrest. With respect to controls, if the tub does not have single-lever operated controls, these can be replaced and relocated toward the entrance side of the tub for easy reach from outside the tub. Grab bars should be considered for both standing or seated persons.

C. A built-in shower of a minimum 36" by 36" may also be fitted with grab bars, seat, hand-held shower, and accessible controls.

D. Should removal and replacement of tub and/or shower be considered, there are a number of manufactured moulded fiberglass units which are available on the market.

E. The toilet can be replaced with a new fixture which is sized for accessibility. In addition, grab bars should be placed along one side and behind the toilet.

F. Standard lavatories, both countertop and wall hung types, can be adapted to meet accessibility requirements. Maximum distance from floor to top of lavatory rim should not exceed 33" and should allow a clear knee space of 27" from the floor to the nearest obstruction for a distance of 8" from the front of the fixture. The controls and faucet can be replaced with lever type handles and raised spout faucet.

6. INTERIOR CIRCULATION:

A. Interior hallways should be a minimum of forty-eight inches wide, however, most will be thirty-six to forty-two inches wide. This narrow width may present an access problem to rooms leading off of these corridors. One approach might be to provide an inset door to an adjacent room.

B. Placement of furniture should be considered so adequate circulation space is available when the room is filled with furniture. Generally, a twelve foot by twelve foot room would be adequate for a bedroom using a standard bed and small dresser.

C. Try to avoid homes with several floor levels.

D. Should you decide on a home which has two floor levels, this transition may be overcome either by a home elevator or by installing a vertical or inclined lift. At this point, you should seek the advice of a professional. That individual should not only assist you in determining the placement and physical requirements of such an installation, but should be able to give you some comparative cost information.

7. BUILDING ELEMENTS:

A. Mounting heights of wall switches and mechanical system thermostats should be no higher than 48" above the floor. Large rocker type wall switches are available and are relatively easy to have installed, assuming that the present mounting height is acceptable.

B. Door knobs may be replaced with lever handle sets. There are also add-on levers which may be installed on certain knob sets.

C. If vision is an issue, check the maximum allowable wattage of ceiling light fixtures. This information is usually noted on the base of the fixture and may require removal of the shade or globe. Should additional lighting be needed, floor lamps and/or replacement of installed fixtures may meet your requirements.

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An additional resource for evaluating your needs and your home is **The Consumer's Guide to Home Adaptation** by the Adaptive Environments Center, 374 Congress St., Suite 301, Boston, MA 02210. Copies of this book can be obtained by sending a check for $9.50. For additonal information call (617) 695-1225.

KEY NOTES are created by THE ACCESS GROUP to provide information about assistive technology to the families of Vietnam veterans who have children with disabilities. THE ACCESS GROUP is jointly funded by the Agent Orange Class Assistance Program and United Cerebral Palsy Associations, Inc. If you are a family member or a professional working with families of Vietnam veterans, THE ACCESS GROUP can serve as a resource to you in your efforts to obtain assistive technology. This publication is also available on audiotape. For more information call: 1-800-821-8580 (Voice, TDD).

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